

**SIMULTANEOUS WAVELENGTH CONVERSION AND AMPLITUDE
MODULATION IN MONOLITHIC QUASI-PHASE-MATCHED (QPM)
NONLINEAR OPTICAL CRYSTAL**

ABSTRACT OF THE DISCLOSURE

An optical element capable of performing nonlinear frequency conversion and amplitude modulation simultaneously is disclosed. The optical element includes a monolithically integrated, electrode-coated dispersion nonlinear optical crystal section between two quasi-phase-matched (QPM) nonlinear optical crystal sections. By electrically controlling the relative phase among the mixing waves in the dispersion section, nonlinear frequency conversion and amplitude modulation can be performed simultaneously.